Serial No. 10/717,954

IN THE CLAIMS:

Please cancel claims 47-71 and 85-91 without prejudice or disclaimer and amend the remaining claims as follows:

1-71. (canceled).

72. (original) An energy-gap apparatus comprising:

a first magnetic mirror (MM);

a second magnetic mirror (MM); and

a conductive layer of material disposed between said first MM and said second MM to magnetically decouple said first MM from said second MM.

73. (currently amended) ~~Said~~ <u>The</u> apparatus of claim 72, wherein said first MM is a half-metallic.

74. (currently amended) ~~Said~~ <u>The</u> apparatus of claim 72, wherein said second MM is a half-metallic.

75. (currently amended) ~~Said~~ <u>The</u> apparatus of claim 72, further comprising:

a low magnetic-coercivity layer of material (LMC layer), having a majority electron-spin-polarization (M-ESP), ~~wherein~~ said first MM having an ESP parallel to said M-ESP of said LMC layer, wherein said first MM <u>is configured</u> to substantially allow electrons having an ESP parallel to said ESP of said first MM to pass through said first MM and to substantially prevent electrons having an

ESP anti-parallel to said ESP of said first MM (anti-parallel electrons) from passing through said first MM, said first MM coupled with said LMC layer; and

a high magnetic-coercivity layer of material (HMC layer), having a M-ESP, ~~wherein~~ said second MM having an ESP parallel to said M-ESP of said HMC layer, wherein said second MM is configured to substantially allow electrons having an ESP parallel to said ESP of said second MM to pass through said second MM and to substantially prevent electrons having an ESP anti-parallel to said ESP of said second MM from passing through said second MM, said second MM coupled with said HMC layer.

76. (currently amended) ~~Said~~ The apparatus of claim 75, wherein said first MM is configured to cause an accumulation of the anti-parallel electrons to interact with and change said M-ESP of said LMC layer.

77. (currently amended) ~~Said~~ The apparatus of claim 76, wherein said ESP of said first MM is configured to change with said M-ESP of said LMC layer.

78. (currently amended) ~~Said~~ The apparatus of claim 75, wherein a first impedance ~~to~~ may be measured between said LMC layer and said HMC layer when said M-ESP of said LMC layer and said M-ESP of said HMC layer are parallel.

79. (currently amended) ~~Said~~ The apparatus of claim ~~75~~ 78, wherein a second impedance ~~to~~ may be measured between said LMC layer and said HMC layer when said M-ESP of said LMC layer and said M-ESP of said HMC layer are anti-parallel.

80. (currently amended) Said The apparatus of claim ~~75~~ 79, wherein said second impedance is larger than said first impedance.

81. (currently amended) ~~Said~~ The apparatus of claim ~~78~~ 79, wherein said first impedance corresponds with a first memory state of a memory cell and said second impedance corresponds with a second memory state of said memory cell.

82. (currently amended) ~~Said~~ The apparatus of claim 72, further comprising:

a low magnetic-coercivity layer of material (LMC layer), having a majority electron spin polarization (M-ESP) parallel with an electron-spin-polarization (ESP) of said first MM; and

a high magnetic coercivity layer of material (HMC layer), having a fixed M-ESP, said second MM having an ESP parallel with said fixed M-ESP of said HMC layer.

83. (currently amended) ~~Said~~ The apparatus of claim 82, wherein a flow of spin-polarized electrons having an ESP anti-parallel to said M-ESP of said LMC

layer ~~to~~ may be injected from said HMC layer to said LMC layer to cause an accumulation of the spin-polarized electrons to interact with and change said M-ESP of said LMC layer.

84. (currently amended) ~~Said~~ The apparatus of claim 83, wherein said ESP of said first MM is configured to change with said M-ESP of said LMC layer.

85-91. (canceled).

92. (newly added) A method, comprising:

providing a first magnetic mirror (MM);

providing a second magnetic mirror (MM); and

magnetically decoupling the first MM from the second MM with a conductive layer of material disposed between the first MM and the second MM.

93. (newly added) The method of claim 92, wherein said first MM is a half-metallic.

94. (newly added) The method of claim 92, wherein said second MM is a half-metallic.

95. (newly added) The method of claim 92, further comprising:

coupling the first MM with a low magnetic-coercivity layer of material (LMC layer) having a majority electron-spin-polarization (M-ESP), the first MM having an ESP parallel to said M-ESP of the LMC layer, wherein the first MM is configured to substantially allow electrons having an ESP parallel to said ESP of the first MM to pass through the first MM and to substantially prevent electrons having an ESP anti-parallel to the ESP of the first MM (anti-parallel electrons) from passing through the first MM; and

coupling the second MM with a high magnetic-coercivity layer of material (HMC layer), having a M-ESP, the second MM having an ESP parallel to the M-ESP of the HMC layer, wherein the second MM is configured to substantially allow electrons having an ESP parallel to the ESP of the second MM to pass through the second MM and to substantially prevent electrons having an ESP anti-parallel to the ESP of the second MM from passing through the second MM.

96. (newly added) The method of claim 95, wherein the first MM is configured to cause an accumulation of the anti-parallel electrons to interact with and change the M-ESP of the LMC layer.

97. (newly added) The method of claim 96, wherein the ESP of the first MM is configured to change with the M-ESP of the LMC layer.

98. (newly added) The method of claim 95, further comprising:

measuring a first impedance between the LMC layer and the HMC layer when the M-ESP of the LMC layer and the M-ESP of the HMC layer are parallel.

99. (newly added) The method of claim 98, further comprising:

measuring a second impedance between the LMC layer and the HMC layer when the M-ESP of the LMC layer and the M-ESP of the HMC layer are anti-parallel.

100. (newly added) The method of claim 99, wherein the second impedance is larger than the first impedance.

101. (newly added) The method of claim 99, wherein the first impedance corresponds with a first memory state of a memory cell and the second impedance corresponds with a second memory state of the memory cell.

102. (newly added) The method of claim 92, further comprising:

providing a low magnetic-coercivity layer of material (LMC layer), having a majority electron-spin-polarization (M-ESP) parallel with an electron-spin-polarization (ESP) of the first MM; and

providing a high magnetic coercivity layer of material (HMC layer), having a fixed M-ESP, the second MM having an ESP parallel with the fixed M-ESP of the HMC layer.

103. (newly added) The method of claim 102, further comprising:

injecting a flow of spin-polarized electrons having an ESP anti-parallel to the M-ESP of the LMC layer from the HMC layer to the LMC layer to cause an accumulation of the spin-polarized electrons to interact with and change the M-ESP of the LMC layer.

104. (newly added) The method of claim 103, wherein the ESP of the first MM is configured to change with the M-ESP of the LMC layer.

105. (newly added) A system, comprising:

a processor; and

a magnetic random access memory (MRAM) coupled with the processor, the MRAM comprising:

a first magnetic mirror (MM);

a second magnetic mirror (MM); and

a conductive layer of material disposed between the first MM and the second MM to magnetically decouple the first MM from the second MM.

106. (newly added) The system of claim 105, further comprising:

an MRAM controller coupled with the processor and the MRAM, wherein the MRAM controller is configured to store data in the MRAM and to read data from the MRAM.

107. (newly added) The system of claim 106, further comprising:

a system bus coupled with the processor; and

a display coupled with the system bus.

108. (newly added) The system of claim 105, further comprising:

a low magnetic-coercivity layer of material (LMC layer) coupled to the first MM, the LMC layer having a majority electron-spin-polarization (M-ESP) parallel with an electron-spin-polarization (ESP) of the first MM; and

a high magnetic coercivity layer of material (HMC layer) coupled to the second MM, the HMC layer having a fixed M-ESP, the second MM having an ESP parallel with the fixed M-ESP of the HMC layer.

109. (newly added) The system of claim 108, wherein a flow of spin-polarized electrons having an ESP anti-parallel to the M-ESP of the LMC layer may be injected from the HMC layer to the LMC layer to cause an accumulation of the spin-polarized electrons to interact with and change the M-ESP of the LMC layer.

110. (newly added) The system of claim 108, wherein the first MM is configured to substantially allow electrons having an ESP parallel to the ESP of the first MM to pass through the first MM and to substantially prevent electrons having an ESP anti-parallel to the ESP of the first MM (anti-parallel electrons) from passing through the first MM,

and wherein the second MM is configured to substantially allow electrons having an ESP parallel to the ESP of the second MM to pass through the second MM and to substantially prevent electrons having an ESP anti-parallel to the ESP of the second MM from passing through the second MM.

111. (newly added) The system of claim 108, wherein a first impedance may be measured between the LMC layer and the HMC layer when the M-ESP of the LMC layer and the M-ESP of the HMC layer are parallel.

112. (newly added) The system of claim 111, wherein a second impedance may be measured between the LMC layer and the HMC layer when the M-ESP of the LMC layer and the M-ESP of the HMC layer are anti-parallel.

113. (newly added) The system of claim 112, wherein the first impedance corresponds with a first memory state of a memory cell in the MRAM and the second impedance corresponds with a second memory state of the memory cell.

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